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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/878,180	06/12/2001	Ikuya Kikuchi	041514-5125	1408

9629 7590 06/08/2004

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EXAMINER

AGUSTIN, PETER VINCENT

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 06/08/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/878,180

Applicant(s)

KIKUCHI ET AL.

Examiner

Peter Vincent Agustin

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed May 18, 2004 have been fully considered but they are not persuasive. Applicant argues on pages 5 & 6 that Owa et al. (US 6,564,009) fails to teach or suggest each feature of independent claims 1, 5 & 6, specifically the claimed center curvature radius of a first surface of a molded glass objective lens satisfying the formula:

$$(3V_1 / 4\pi)^{1/3} \leq rA < (3V_2 / 4\pi)^{1/3}$$

However, as noted on the last office action, due to the presence of the cylindrical section of Owa et al's lens, the center curvature radius of the first surface must be greater than  $(3V_1/4\pi)^{1/3}$ , where  $V_1$  is the lens volume, i.e., " $(3V_1/4\pi)^{1/3} \leq rA$ " where " $V_1$  denotes the volume of said molded glass objective lens" of claims 1, 5 and 6. This follows from the fact that the radius of a sphere would be equal to  $(3V_s/4\pi)^{1/3}$ , where  $V_s$  is the volume of a sphere. Due to the presence of the notched section of the lens 17A, the center curvature radius must be less than  $(3V_2/4\pi)^{1/3}$ , where  $V_2$  is a virtual lens portion volume, i.e., " $rA < (3V_2/4\pi)^{1/3}$ " where " $V_2$  denotes the volume of a virtual lens portion" of claims 1, 5 and 6. This follows from the fact that the virtual lens portion includes the notched section of Owa et al's lens and the light beam of Owa et al. is focused within the actual lens 17A. Furthermore, only one value in the claimed range needs to be met in order to reject the independent claims, which value has been met for the reasons recited above. Therefore, claims 1, 2, 3, 5 and 6 remain rejected under 35 U.S.C. 102(e) as being anticipated by Owa et al. In addition, claim 4 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Owa et al. as applied to claim 1 above, and further in view of Knight et al. (US 6,243,350).

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 3, 5 and 6 rejected under 35 U.S.C. 102(e) as being anticipated by Owa et al. Figure 8, element 17A and column 12, lines 45-52 disclose “a molded glass objective lens” of claim 1; figure 7 discloses “an optical pickup device characterized by comprising a molded glass objective lens” of claim 5; and figure 1 discloses “an optical recording/reproducing apparatus characterized by comprising an optical pickup device having a molded glass objective lens” of claim 6. Lens 17A in figure 8 shows the claimed “first surface having a center symmetric convex surface shape at least in a range of an optical beam passing therethrough”, “second surface having a center symmetric effective surface shape at least in a range of an optical beam passing therethrough on a side opposite to said first surface”, and “center symmetric cylindrical side surface crossing with said first surface” of claims 1, 5 and 6; and “a circular reference plane surface which does not shield a transmitting luminous flux refracted at said first surface and is perpendicular to an optical axis, within a border surface which would exist assuming that said virtual lens portion is overlapped with said molded glass objective lens so as to correspond to said first and second surfaces and said cylindrical side surface” (claim 2). (See also “Response to Arguments” above). Column 13, lines 40-51 disclose “comprising such a shape that the curvature radius is minimum outside an effective diameter of said second surface” (claim 3).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Owa et al. in view of Knight et al.

Owa et al. in the optical disc recording art, discloses all the claimed features as noted in the 102 rejection above, except for the claimed "circular reference cone surface centering an optical axis which does not shield a transmitting luminous flux refracted at said first surface, within a border surface which would exist assuming that said virtual lens portion is overlapped with said molded glass objective lens so as to correspond to said first and second surfaces and said cylindrical side surface" (claim 4).

Knight et al. in the optical storage art, discloses "circular reference cone surface centering an optical axis which does not shield a transmitting luminous flux refracted at said first surface" in figure 7. It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to substitute the "circular reference cone surface centering an optical axis which does not shield a transmitting luminous flux refracted at said first surface" of Knight et al. to the objective lens of Owa et al. the motivation being to create an optical head of reduced weight and dimensions.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Katsuma (US 6,466,536) (figure 3) and Yamada et al. (US 6,188,528) (figure 9) disclose lenses having shapes that resemble that of the present invention, but do not disclose or suggest the specific dimensions claimed.

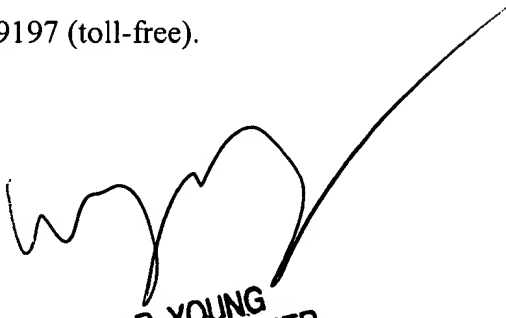
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Vincent Agustin whose telephone number is (703) 305-8980. The examiner can normally be reached on Monday thru Friday 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2652

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PVA  
05/27/2004



W. R. YOUNG  
PRIMARY EXAMINER